

# US Coast Guard Corrosion Program Office



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**ASETSDefense Workshop**

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# Corrosion Control Program



Program is to mitigate corrosion through:

- Policy
- Training
- Processes
- Awareness
- Data Analysis
- Failure Investigation
- Implementing Technology
- Industry & Government Interaction
- Corrosion Prevention Products and Tools





# Coatings on Coast Guard Aircraft



Coatings have **two** purposes.

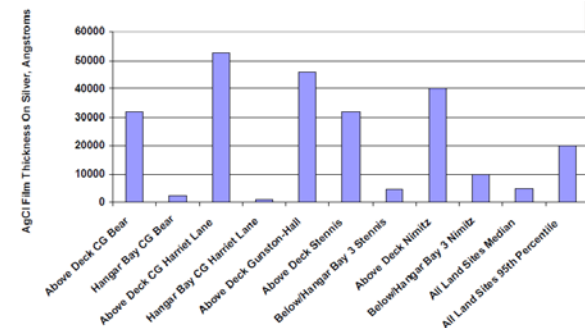




# Coatings on Coast Guard Aircraft

Coatings have **two** purposes.

1. They protect the structure from the severe corrosive environment where Coast Guard aircraft operate.



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# Coatings on Coast Guard Aircraft



Coatings have **two** purposes.

2. They provide trademark identification for the USCG.

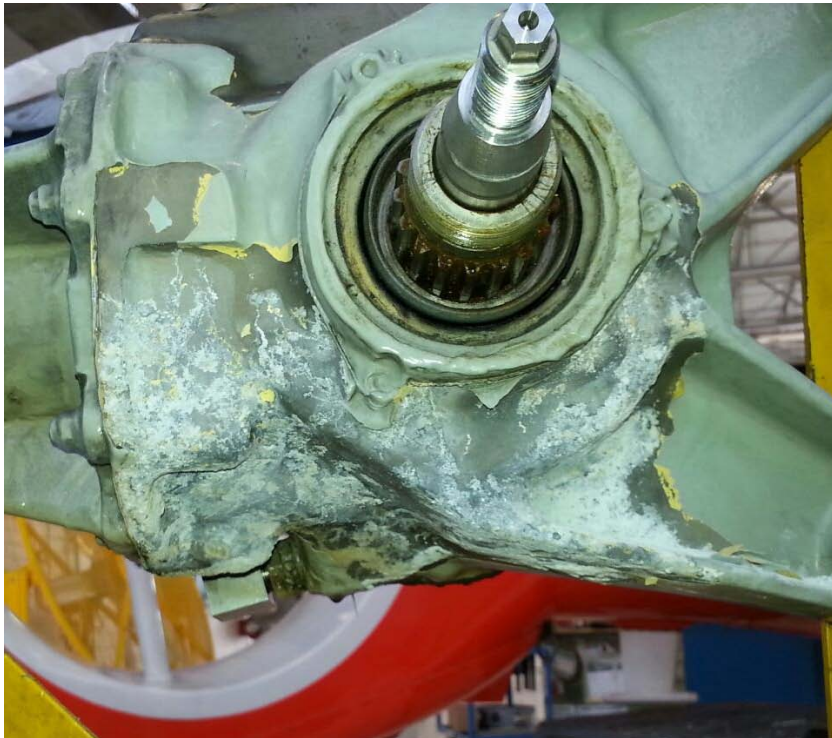




# Structural Integrity



We strive to use the  
*best corrosion coatings available*  
and still....







# Traversing Classic Boundary Primer Test Environments with Extrinsic Coast Guard Maritime Environmental Realism of Select Non-Chrome Primers





# Traversing Classic Boundary Primer Test Environments with Extrinsic Coast Guard Maritime Environmental Realism of Select Non-Chrome Primers

In other words...

How do you test & capture real world  
effects equally on multiple coating systems?



# Realism Testing of Select Non-Chrome Primers



## Airframe Tests



# Realism Testing of Select Non-Chrome Primers



## 8 Aircraft

Nor				
	W/O	Tail	Dep.	Unit
Phase 2	1188	6521	13-Jan-12	Hitron
	1189	6552	2-Feb-12	Hitron
	1190	6595	16-Feb-12	Hitron
	1191	6528	7-Mar-12	Hitron
	1199	6597	13-Jun-12	Port Angeles
Phase 3	1100	6518	1-Aug-12	Port Angeles
	1101	6564	25-Aug-12	Corpus
	1102	6554	12-Sep-12	Corpus





# Realism Testing of Select Non-Chrome Primers



## Interim 8 Aircraft Interior

Non-Chrome primer application					
	W/O	Tail	Dep.	Unit	Interior
Phase 2	1188	6521	13-Jan-12	Hitron	Chrome
	1189	6552	2-Feb-12	Hitron	Chrome
	1190	6595	16-Feb-12	Hitron	Chrome
	1191	6528	7-Mar-12	Hitron	Chrome
	1199	6597	13-Jun-12	Port Angeles	Chrome
Phase 3	1100	6518	1-Aug-12	Port Angeles	Chrome RT Non-Chrome LT
	1101	6564	25-Aug-12	Corpus	Chrome LT Non-Chrome RT
	1102	6554	12-Sep-12	Corpus	Non-Chrome







# Realism Testing of Select Non-Chrome Primers



## Interim 8 Aircraft Interior Exterior

Non-Chrome primer application plan for H65 aircraft							
	W/O	Tail	Dep.	Unit	Interim Paint		
					Interior	Exterior	
Phase 2	1188	6521	13-Jan-12	Hitron	Chrome	Chrome	
	1189	6552	2-Feb-12	Hitron	Chrome	Chrome RT	Non-Chrome LT
	1190	6595	16-Feb-12	Hitron	Chrome	Chrome LT	Non-Chrome RT
	1191	6528	7-Mar-12	Hitron	Chrome	Non-Chrome	
	1199	6597	13-Jun-12	Port Angeles	Chrome	Non-Chrome	
Phase 3	1100	6518	1-Aug-12	Port Angeles	Chrome RT	Non-Chrome LT	Non-Chrome
	1101	6564	25-Aug-12	Corpus	Chrome LT	Non-Chrome RT	Non-Chrome
	1102	6554	12-Sep-12	Corpus	Non-Chrome	Non-Chrome	





# Realism Testing of Select Non-Chrome Primers



**Interim**

**8 Aircraft      Interior      Exterior      Final**

Non-Chrome primer application plan for H65 aircraft							
	W/O	Tail	Dep.	Unit	Interim Paint		Final Paint
					Interior	Exterior	(outer mold line)
Phase 2	1188	6521	13-Jan-12	Hitron	Chrome	Chrome	Non-Chrome
	1189	6552	2-Feb-12	Hitron	Chrome	Chrome RT    Non-Chrome LT	Non-Chrome
	1190	6595	16-Feb-12	Hitron	Chrome	Chrome LT    Non-Chrome RT	Non-Chrome
	1191	6528	7-Mar-12	Hitron	Chrome	Non-Chrome	Non-Chrome
	1199	6597	13-Jun-12	Port Angeles	Chrome	Non-Chrome	Non-Chrome
Phase 3	1100	6518	1-Aug-12	Port Angeles	Chrome RT    Non-Chrome LT	Non-Chrome	Non-Chrome
	1101	6564	25-Aug-12	Corpus	Chrome LT    Non-Chrome RT	Non-Chrome	Non-Chrome
	1102	6554	12-Sep-12	Corpus	Non-Chrome	Non-Chrome	Non-Chrome





# Realism Testing of Select Non-Chrome Primers







# Realism Testing of Select Non-Chrome Primers







# Realism Testing of Select Non-Chrome Primers

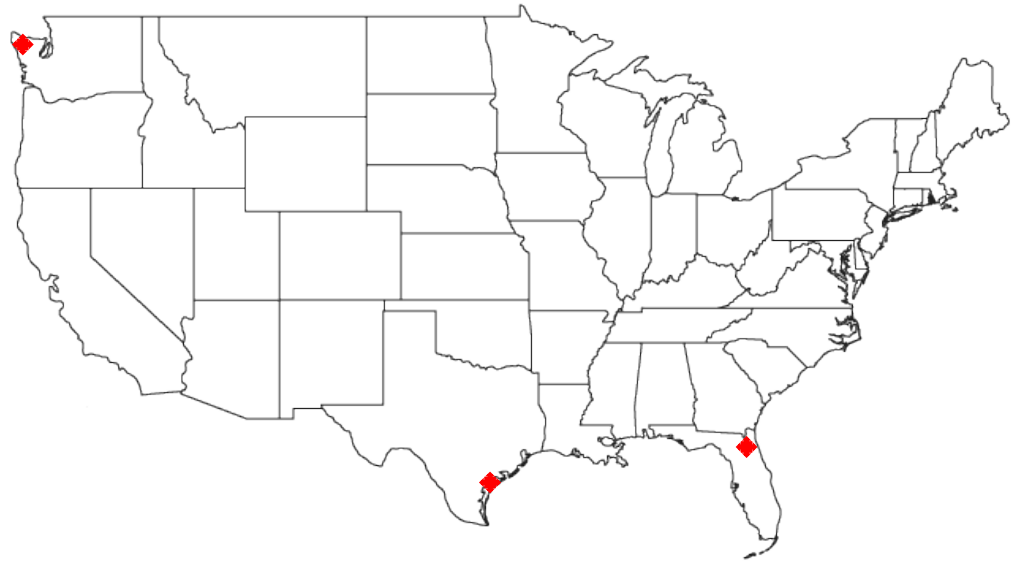
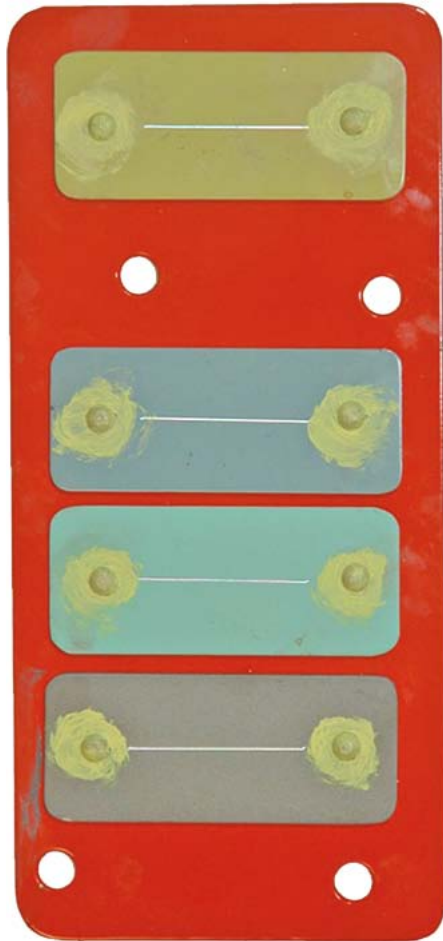


# Coupon Tests



# Realism Testing of Select Non-Chrome Primers

## Coupon Test

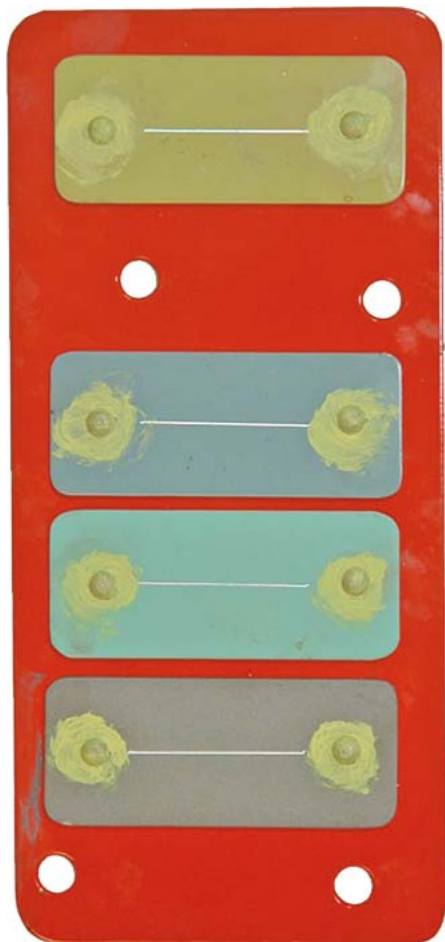


Port Angeles, WA  
Corpus Christi, TX  
Jacksonville, FL



# Realism Testing of Select Non-Chrome Primers

## Coupon Test

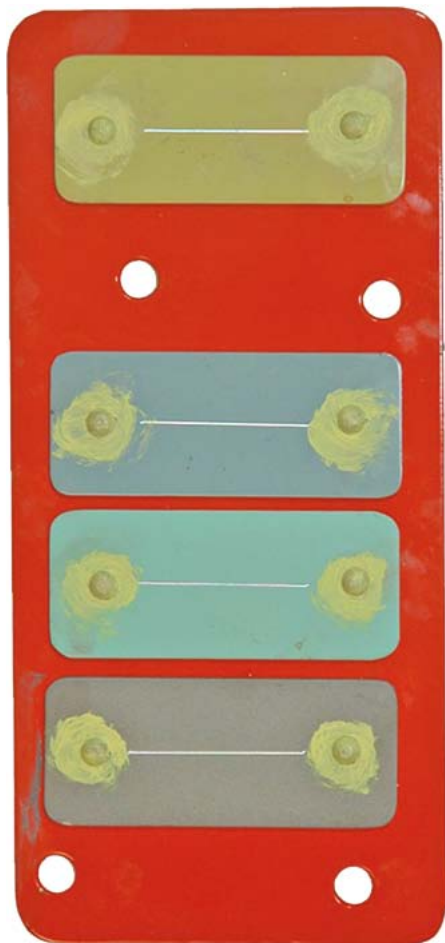


**MIL-PRF 23377 Type I, Class C2**



# Realism Testing of Select Non-Chrome Primers

## Coupon Test



MIL-PRF 23377 Type I, Class C2

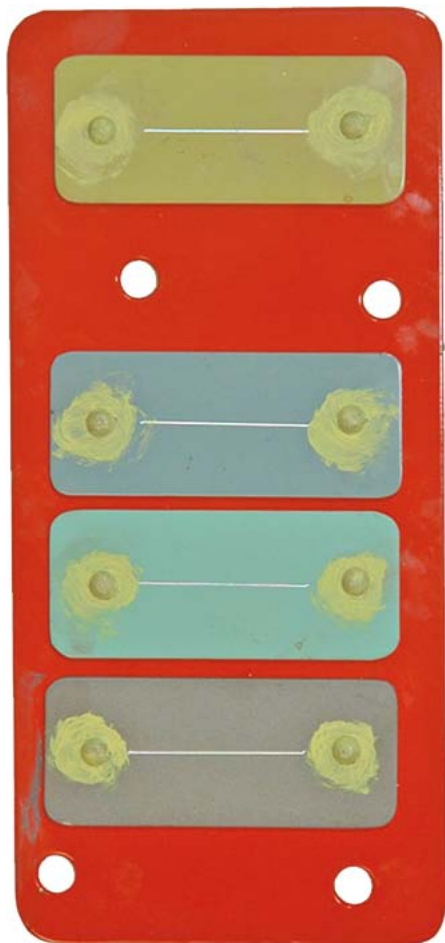
SAE-AMS 3144 Type I, Class N





# Realism Testing of Select Non-Chrome Primers

## Coupon Test



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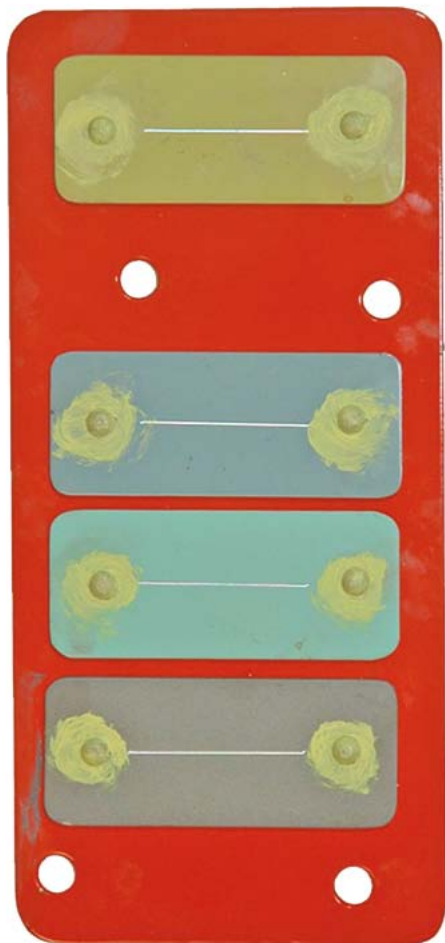
SAE-AMS 3144 Type I, Class N

**MIL-PRF 23377 Type I, Class N**



# Realism Testing of Select Non-Chrome Primers

## Coupon Test



MIL-PRF 23377 Type I, Class C2

SAE-AMS 3144 Type I, Class N

MIL-PRF 23377 Type I, Class N

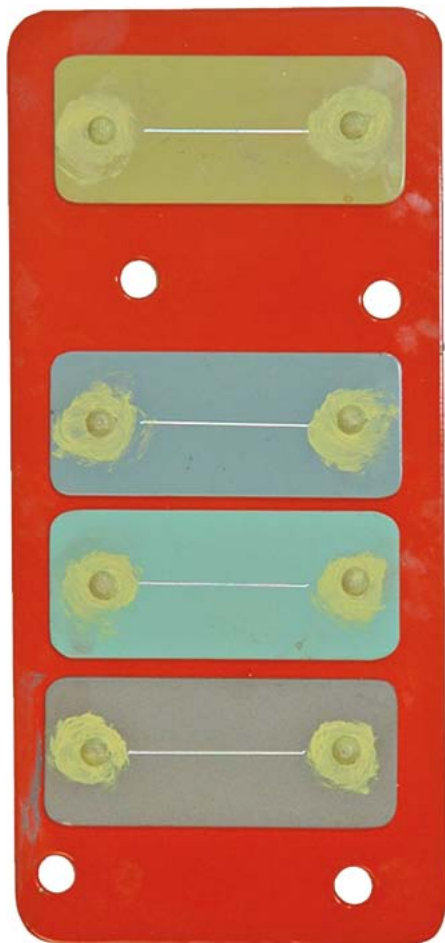
**Magnesium Rich Primer**



# Realism Testing of Select Non-Chrome Primers



## Coupon Test

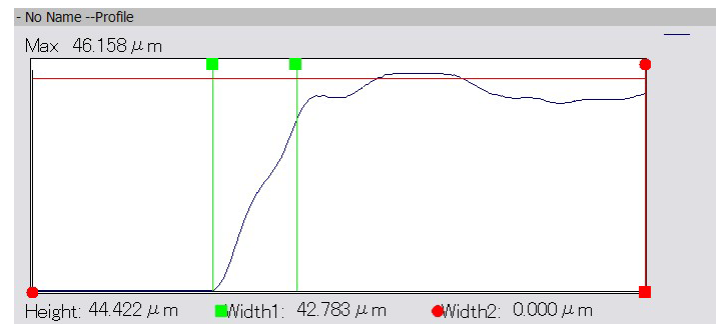
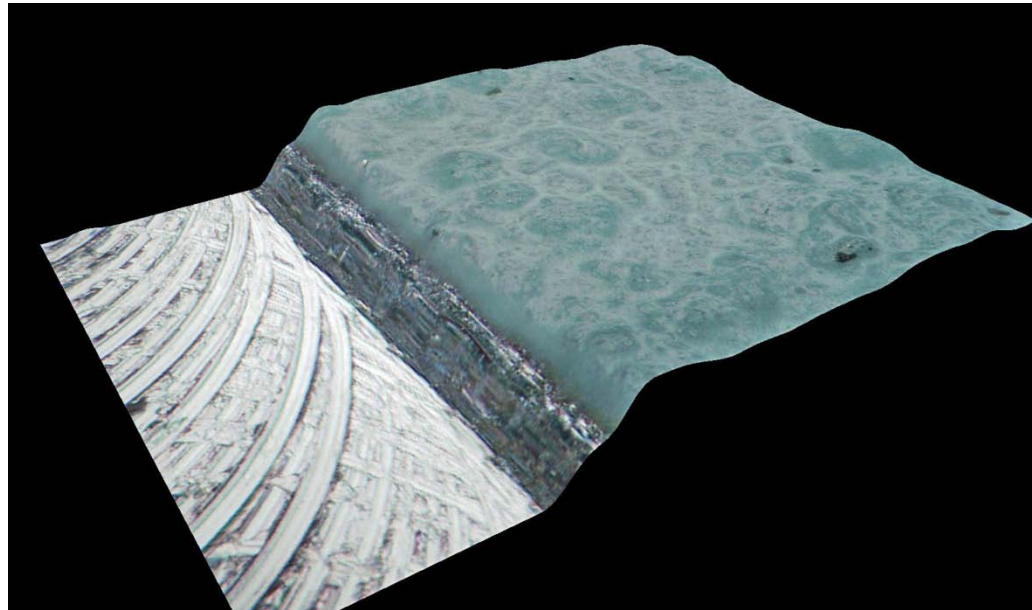
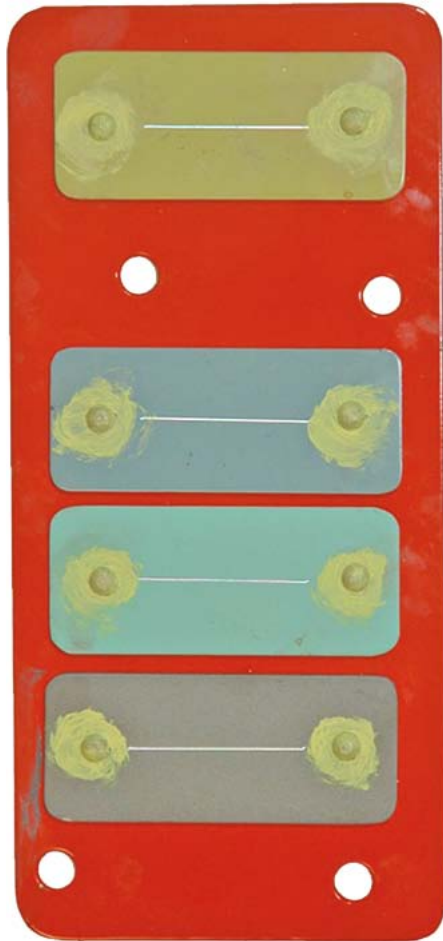


Scribe



# Realism Testing of Select Non-Chrome Primers

## Coupon Test



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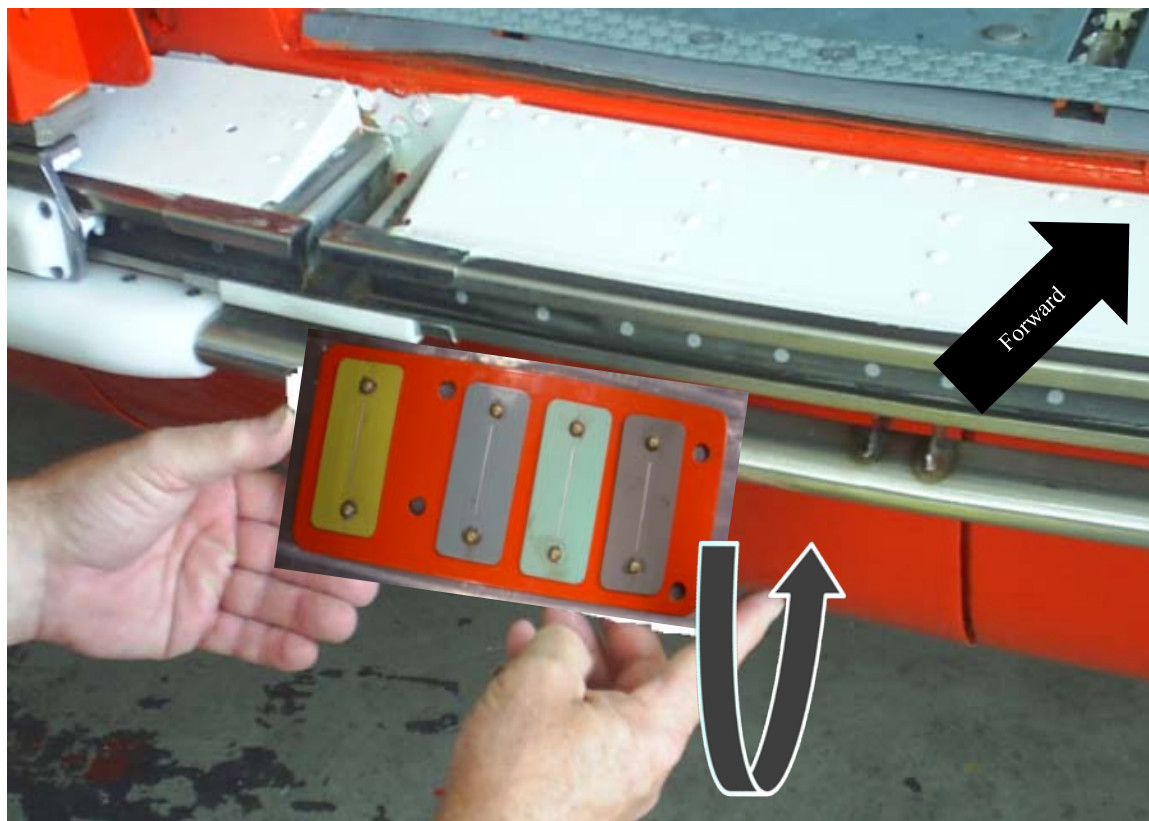
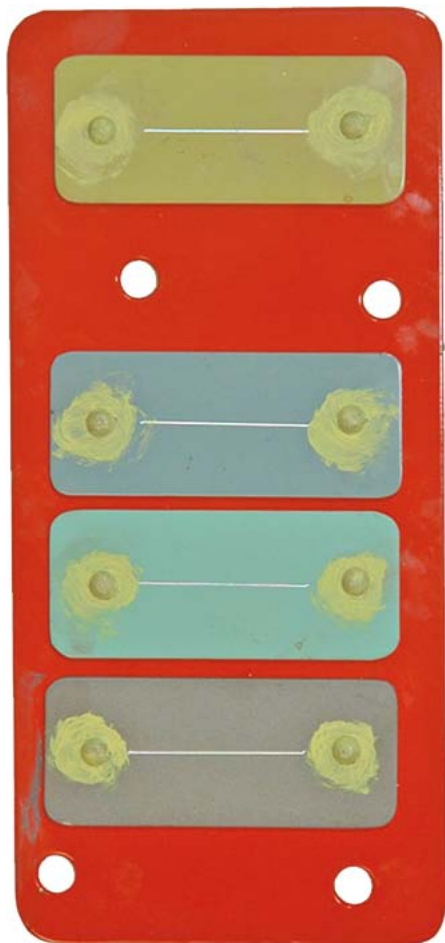




# Realism Testing of Select Non-Chrome Primers



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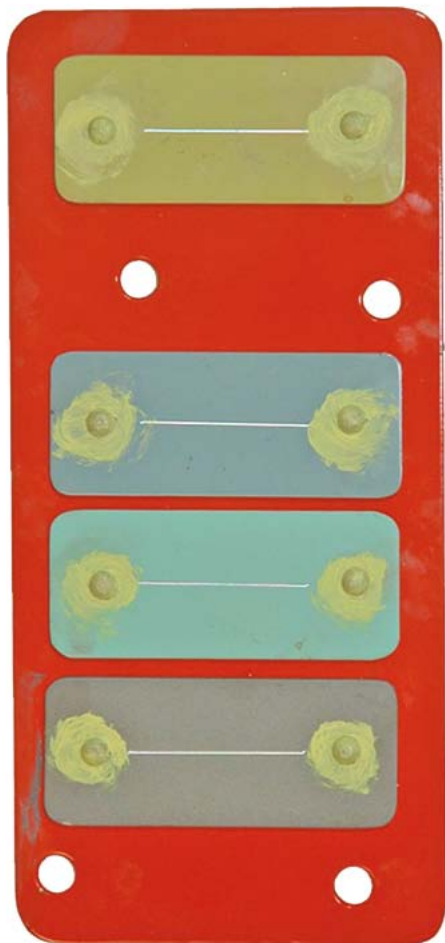




# Realism Testing of Select Non-Chrome Primers



## Coupon Test





# Realism Testing of Select Non-Chrome Primers



## Coupon Test

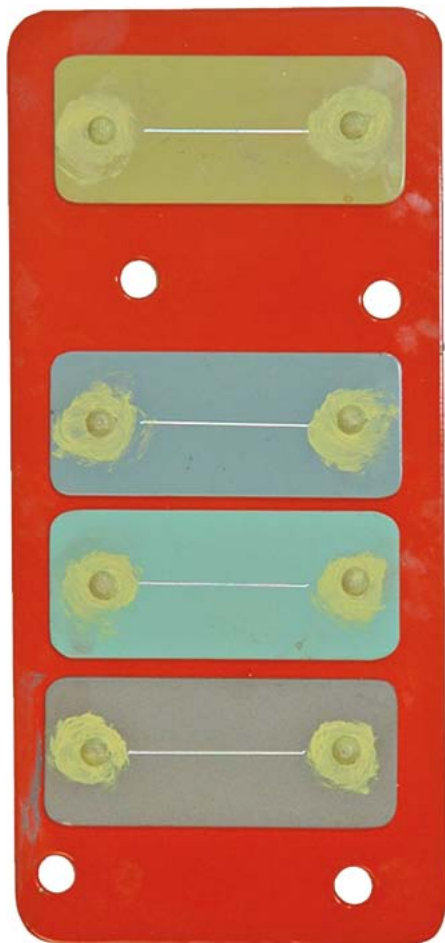


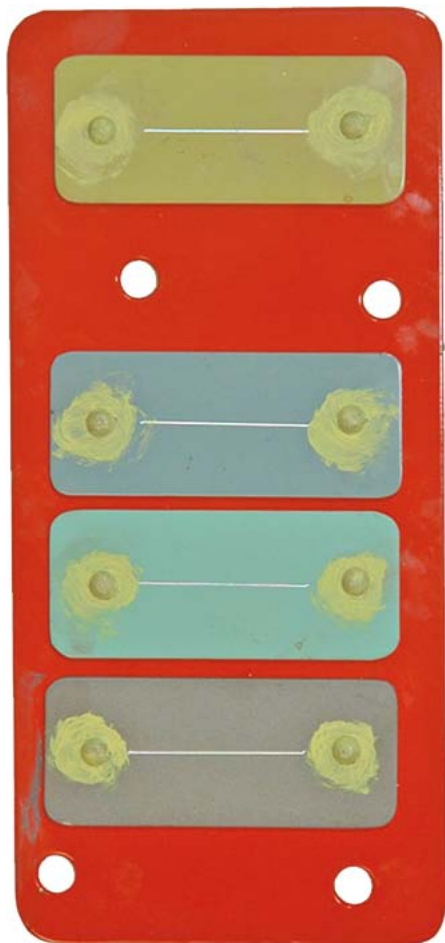
Photo by Ted Carlson





# Realism Testing of Select Non-Chrome Primers

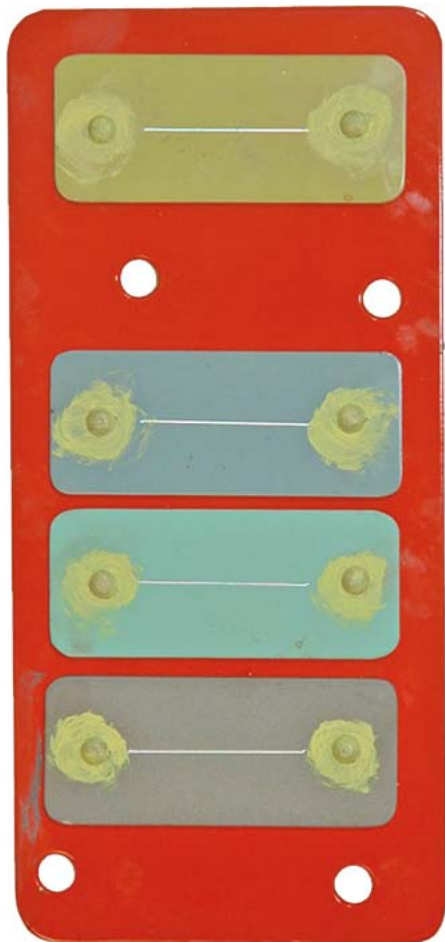
## Coupon Test





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## Coupon Test



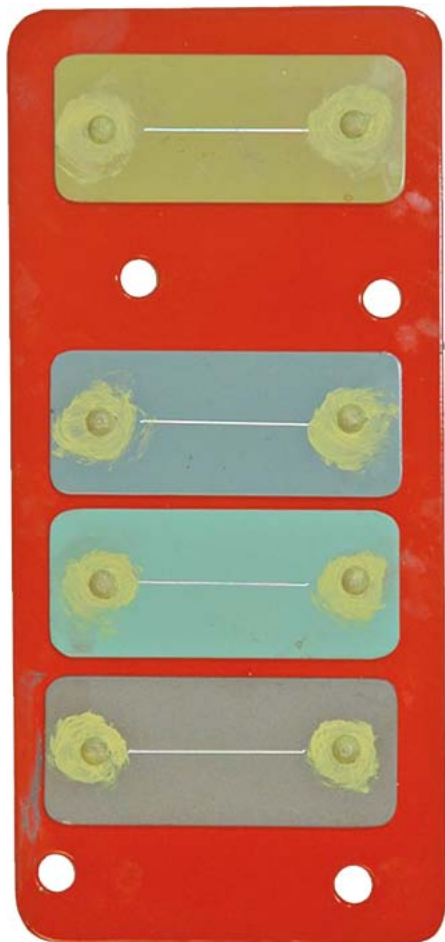




# Realism Testing of Select Non-Chrome Primers



## Coupon Test





# Realism Testing of Select Non-Chrome Primers



**MIL-PRF 23377 Type I, Class C2**

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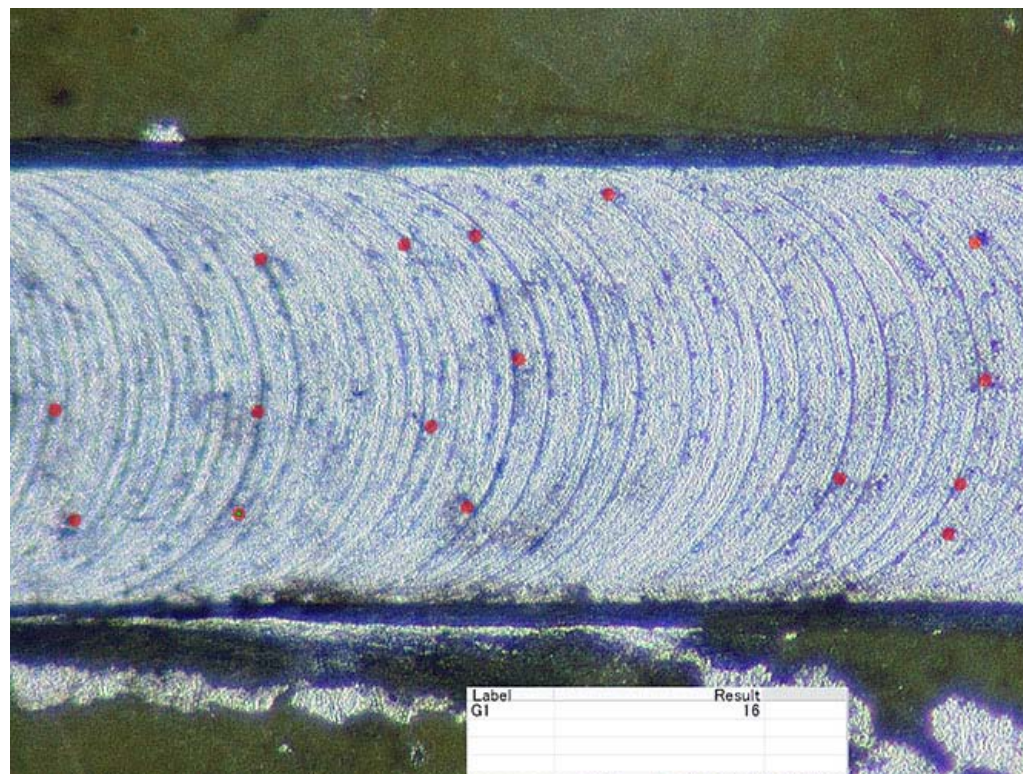




# Realism Testing of Select Non-Chrome Primers



## MIL-PRF 23377 Type I, Class C2





# Realism Testing of Select Non-Chrome Primers



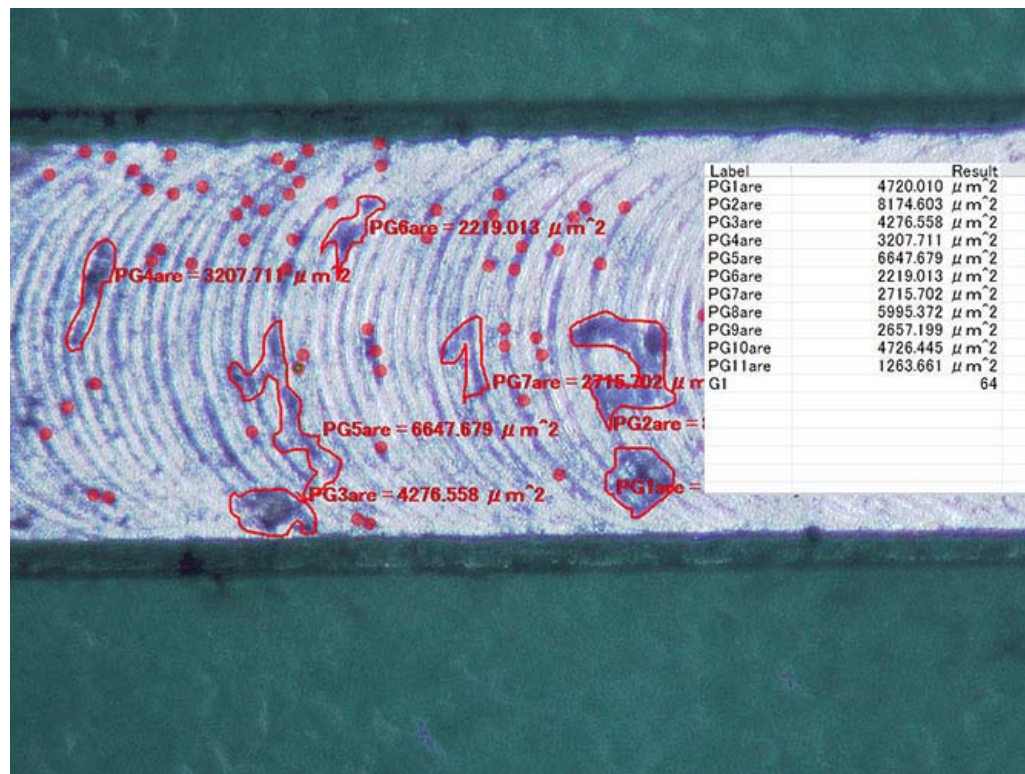
**SAE-AMS 3144 Type I, Class N**





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## SAE-AMS 3144 Type I, Class N







# Realism Testing of Select Non-Chrome Primers

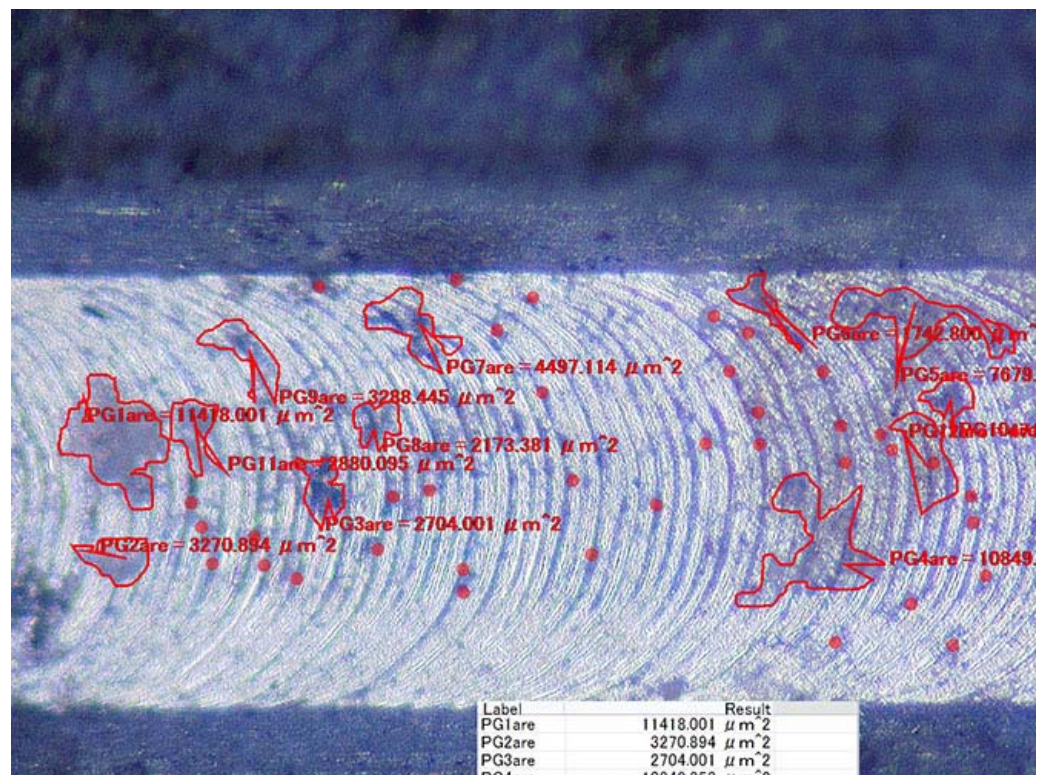


**MIL-PRF 23377 Type I, Class N**



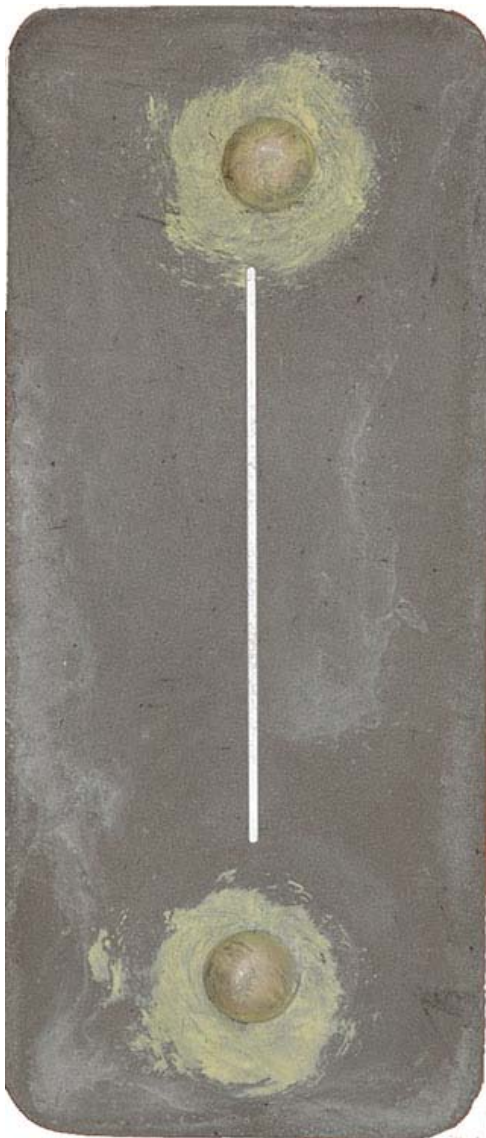
# Realism Testing of Select Non-Chrome Primers

## MIL-PRF 23377 Type I, Class N





# Realism Testing of Select Non-Chrome Primers



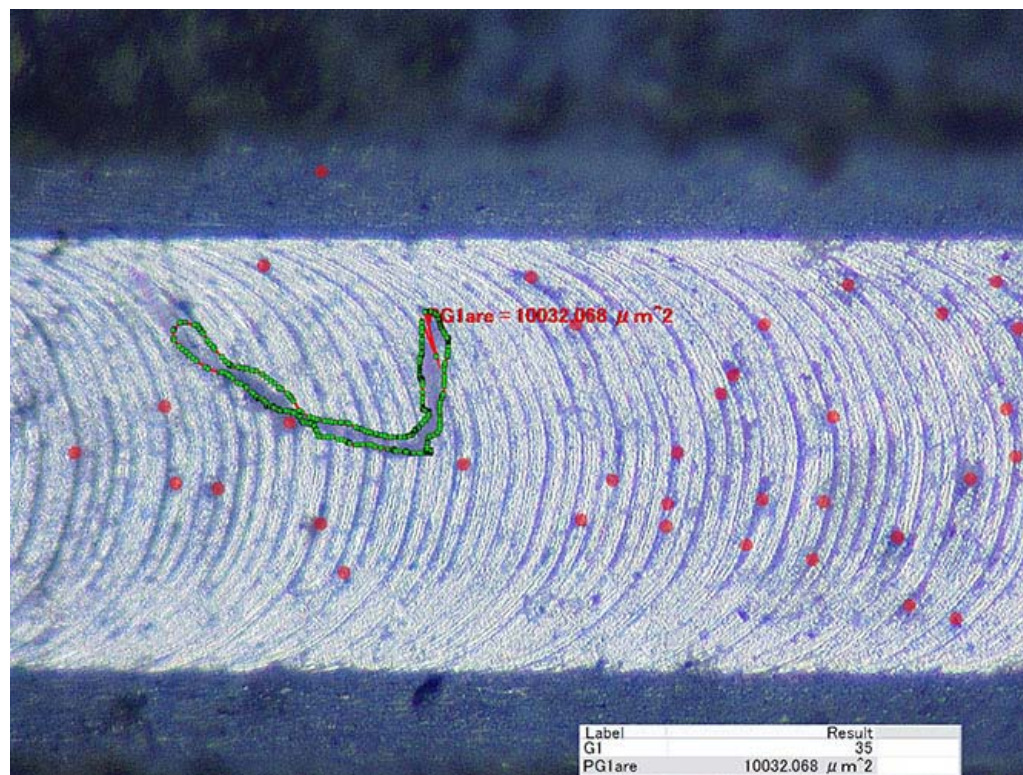
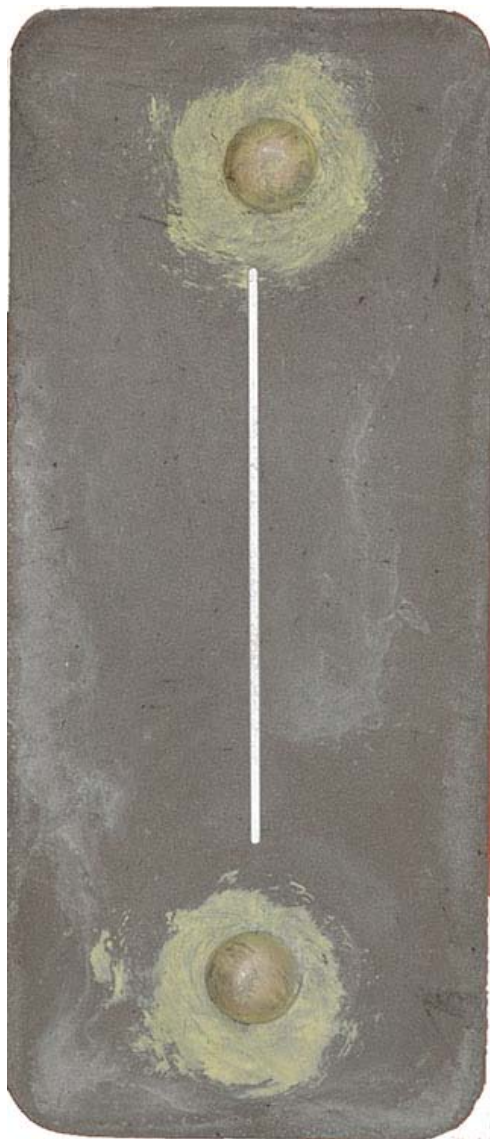
## Magnesium Rich Primer





# Realism Testing of Select Non-Chrome Primers

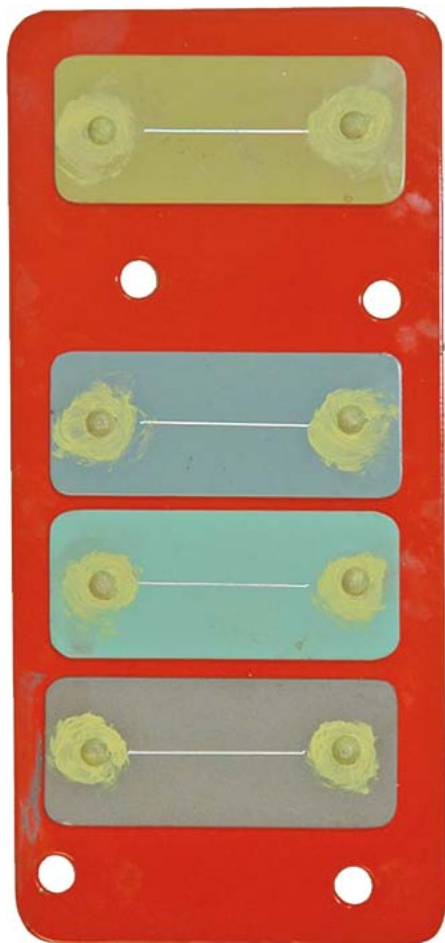
## Magnesium Rich Primer







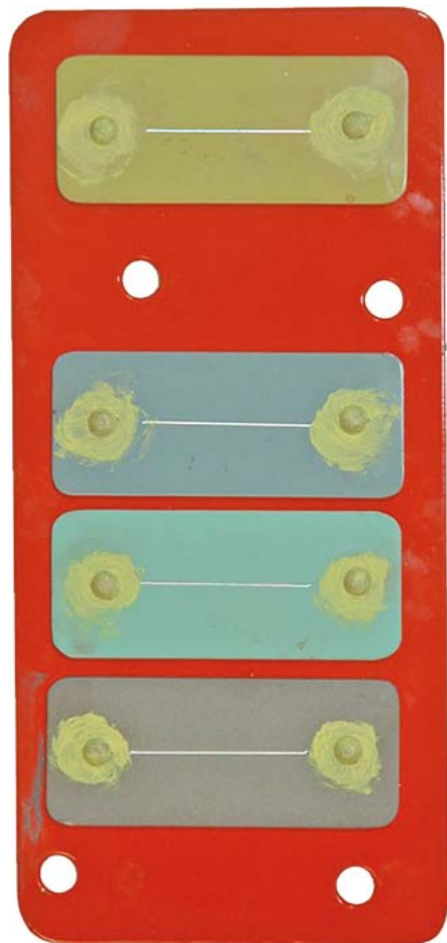
# Realism Testing of Select Non-Chrome Primers





# Realism Testing of Select Non-Chrome Primers

## Corroded Area



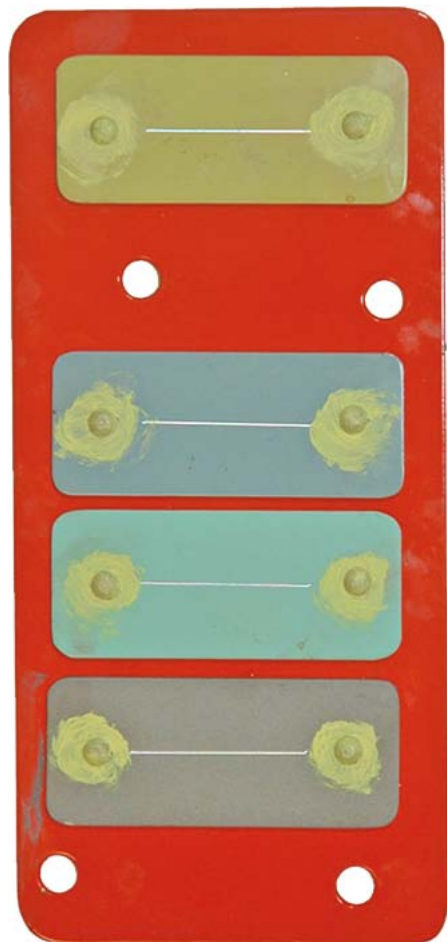
→ 2,825,844 15.2%





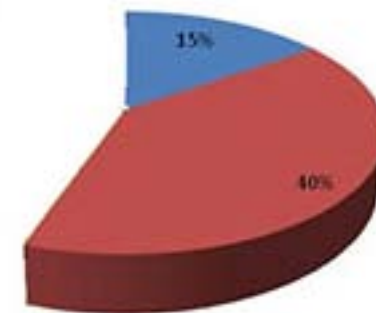
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## Corroded Area



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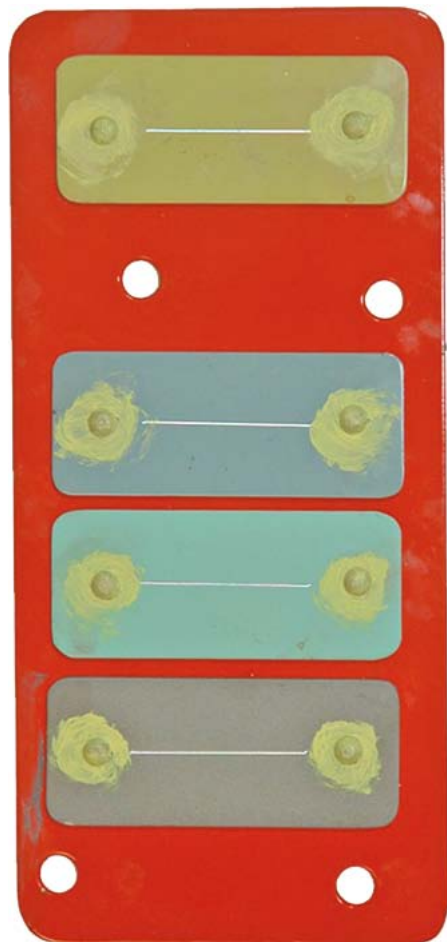
→ 7,484,786 40.1%





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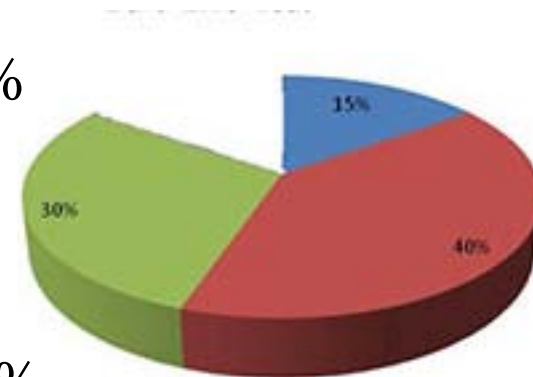
## Corroded Area



→ 2,825,844 15.2%

→ 7,484,786 40.1%

→ 5,480,302 29.4%

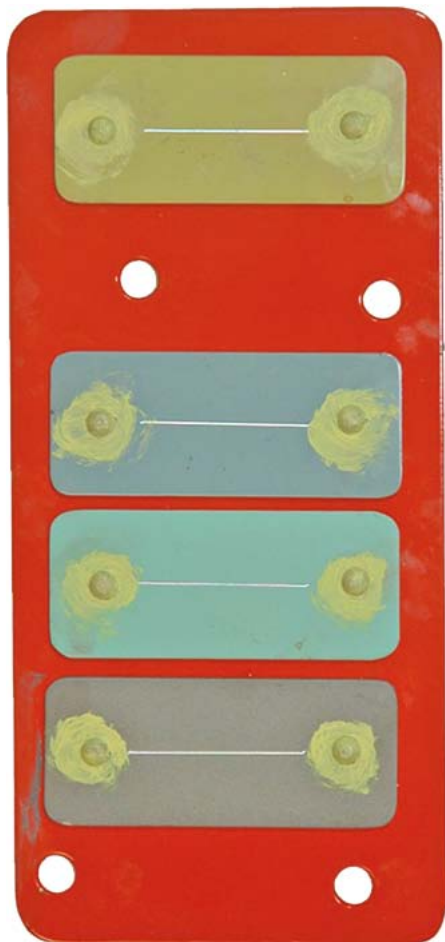






# Realism Testing of Select Non-Chrome Primers

## Corroded Area



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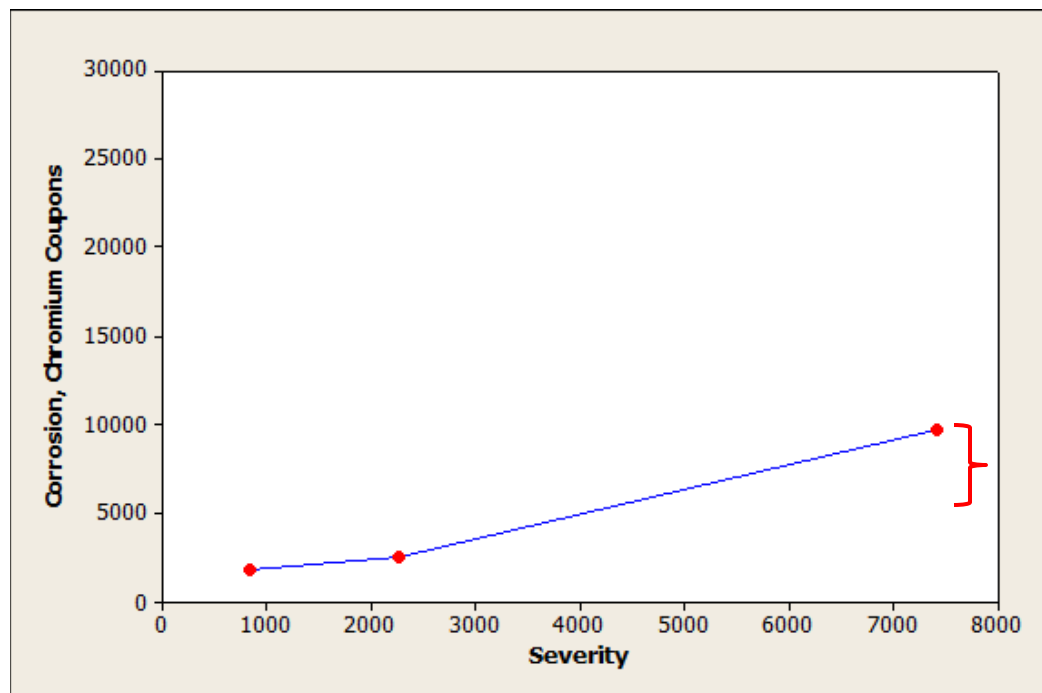
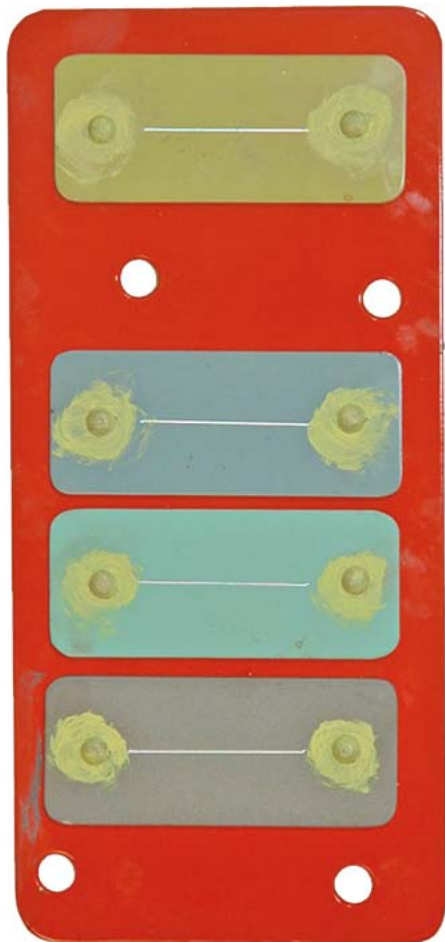
→ 2,853,541 15.3%





# Realism Testing of Select Non-Chrome Primers

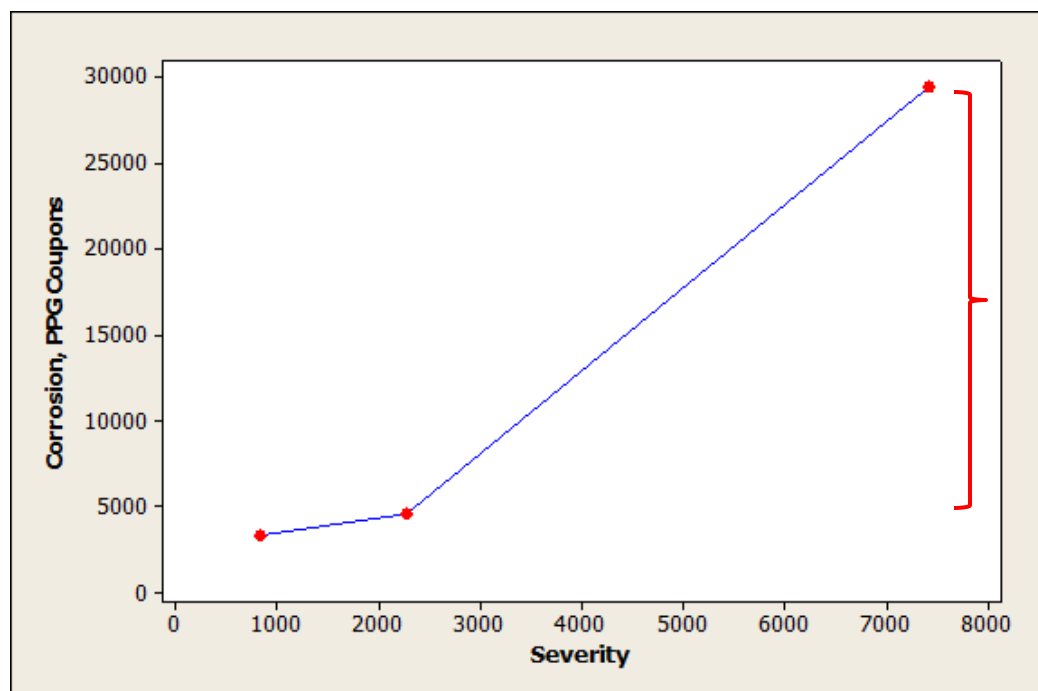
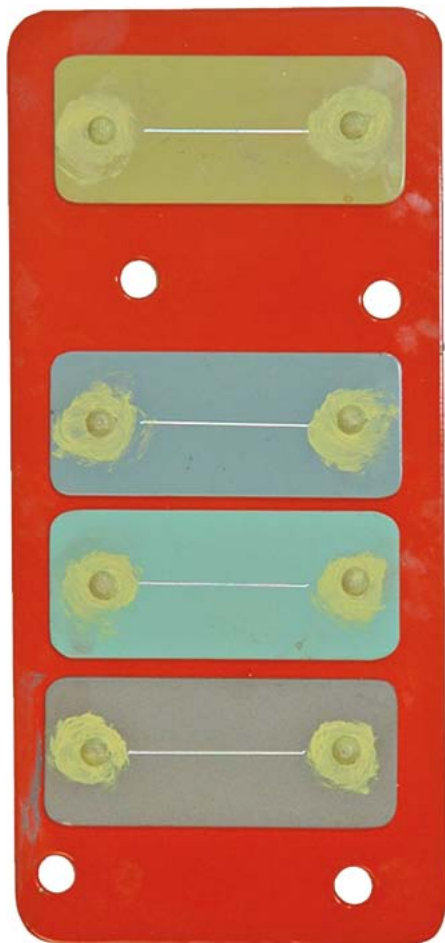
## Corroded Area





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## Corroded Area

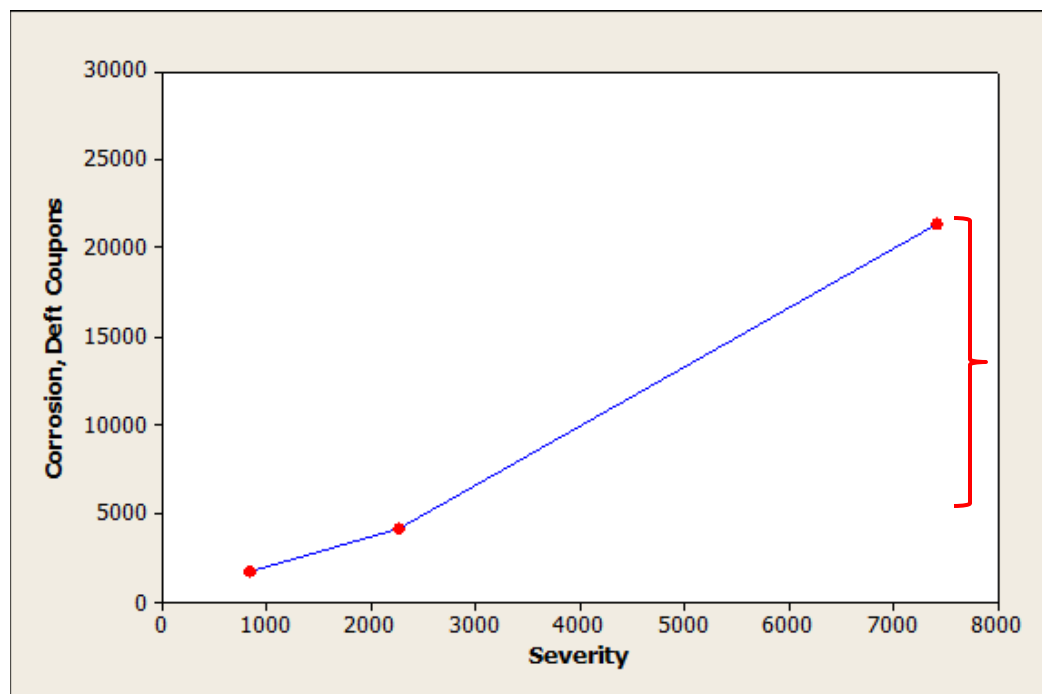
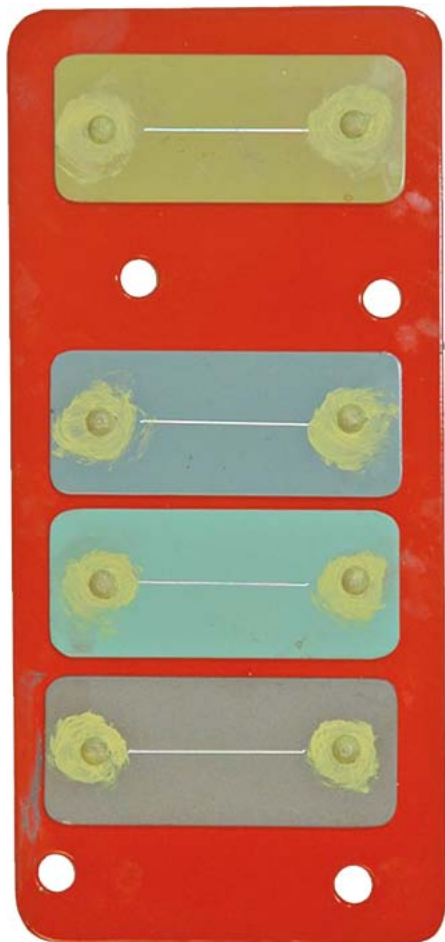






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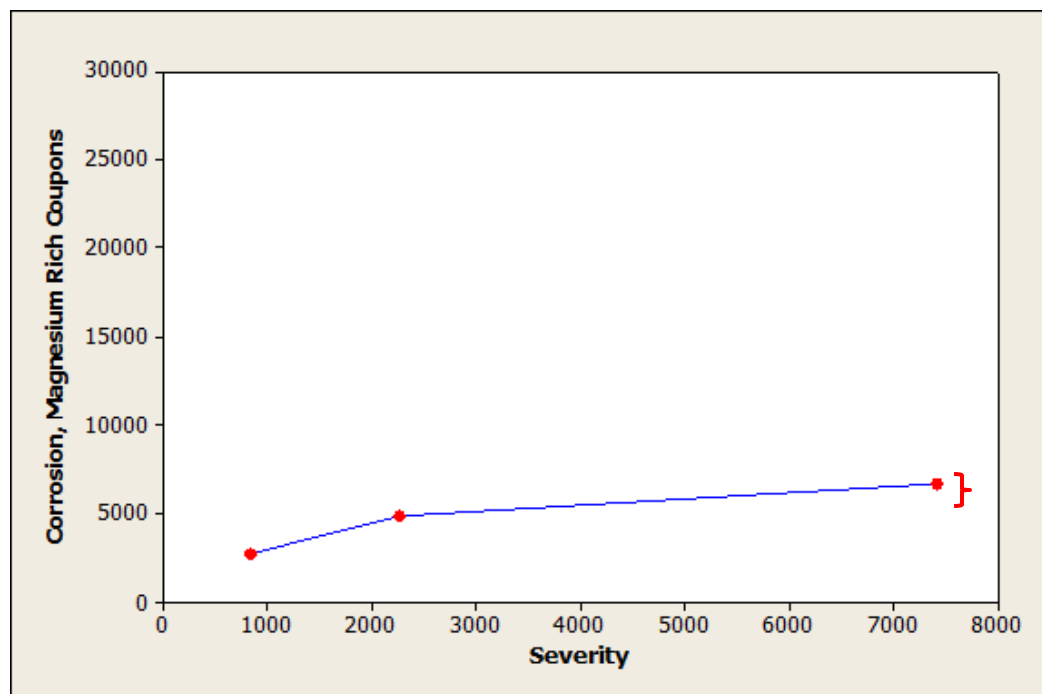
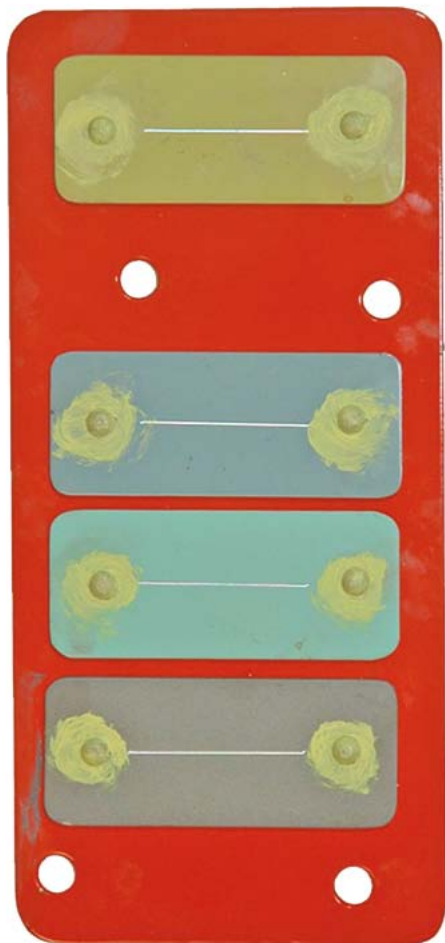
## Corroded Area





# Realism Testing of Select Non-Chrome Primers

## Corroded Area





## Current CG Aircraft Coating Policy



- Depot applies Chromate Primer MIL-PRF-23377 Type I, Class C1 or C2, where necessary
- Units use non-chrome epoxy polyamide primer, MIL-PRF-23377K, Type1, Class N, only.
- All topcoats are already non-chrome
- Minimizes chrome exposure risk to only sanding/repairing





# Questions ?

